PROCEEDINGS

OF THE

Hawaiian Entomological Society

Vol. VI, No. 3. For the Year 1926. October, 1927.

JANUARY 7, 1926.

The 240th regular meeting of the Hawaiian Entomological Society was held at the Experiment Station of the Hawaiian Sugar Planters' Association at 2:30 p. m., Vice-President R. H. Van Zwaluwenburg presiding. Other members present were: Messrs. Bryan, Crawford, Ehrhorn, Fullaway, Hadden, Illingworth, Muir, Rosa, Swezey, Wilder and Williams.

The minutes of the two previous meetings were read and approved.

The Secretary reported that, at a meeting of the Executive Committee, the following appointments for 1926 had been made:

Librarian, Mr. F. C. Hadden.

Custodian of Collections, Dr. F. X. Williams.

The report of the Treasurer for 1925, which had been audited by Mr. Van Zwaluwenburg, was read and accepted.

Mr. Muir read a letter from Dr. L. O. Howard, thanking the entomologists of Hawaii for their endorsement of the plan of the Pan-Pacific Union to try to have the 1928 meeting of the International Entomological Congress held in Honolulu.

PAPERS.

Mr. Swezey presented a paper entitled **"The Sisal Borer in Hawaii,"** and exhibited larvae, pupae and adult specimens of this weevil. A discussion followed concerning the possible introduction of this species, *Scyphophorus acupunctatus* Gyll. Because of its relationship to North American species, and its distribution in Hawaii, it was the opinion of various members that it probably came from Mexico or the southwestern United States in ornamental century plants.

NOTES AND EXHIBITIONS.

Molokai Notes.—Mr. Swezey exhibited a reared specimen of a new species of Plagithmysus reared from dead Pipturus, and gave a few brief notes on a recent field trip to the mountains of Molokai. These notes are to be included in a paper.

Thread Worms.—Mr. Swezey exhibited specimens of a thread worm (Gordius) which had been found in a six weeks old nymph of *Oxya sinensis* (Walker), our common grasshopper. Mr. Fullaway noted having found thread worms in specimens of Adoretus beetles in Formosa, and in Scotorythra caterpillars in Hawaii. Mr. Muir stated that they had been found in leaf-hoppers, and that nematodes were reported from the heads of termites.

Mites.—Dr. Illingworth reported being annoyed by the bites of a mite (*Pediculoides ventricosus* Newp.) while handling algaroba beans. A discussion followed on the prevalence of this "kiawe itch," and its relief by alcohol, kerosene and other remedies.

New Homopteron.—Mr. Muir exhibited a series of a new Homopterous insect from Haiti, related to Cixiidae.

Psammodius nanus De Geer.—Mr. Van Zwaluwenburg exhibited specimens and reported the occurrence of this small scarabaeid beetle among the roots of sugar cane in the fields of the Hawaiian Commercial and Sugar Co., on Maui. This species, which has not been previously recorded on Maui, was possibly carried there in stable manure.

Flight of Ants.—Mr. Fullaway reported a flight of *Pheidole megacephala* (Fab.) about Christmas time in Kohala, Hawaii. It had occurred after a rain, which is a favorite time for such flights.

Termites in Buildings.—Mr. Ehrhorn introduced the subject of the occurrence of termites in cement buildings in Honolulu. The discussion which followed pointed out that termites could work their way through ordinary mortar and cracks in cement, and that the source of infestation could frequently be traced under the sidewalk to nearby telephone and electric light poles. Various ways of control were suggested, such as dipping pole butts, killing off with carbon bisulphide colonies in poles and treating the holes from which infested poles had been removed.

Froghopper from Mexico.—Mr. Van Zwaluwenburg exhibited specimens of a cercopid, *Tomaspis postica* Walker, (identified by McAtee), found abundantly in sugar cane fields in Sinaloa, Mexico, Sept. 15, 1925, by H. T. Osborn.

Immigrant Birds on Maui.—Mr. Wilder reported that the English sparrow and the linnet had become established on Maui, and were abundant even high up in Kula, on the slopes of Haleakala.

FEBRUARY 4, 1926

The 241st regular meeting of the Hawaiian Entomological Society was held at the usual time and place, with President Willard in the chair. Other members present were: Messrs. Bryan, Ehrhorn, Fullaway, Illingworth, Hadden, Muir, Rosa, Swezey, Van Zwaluwenburg, Wilder and Williams.

The minutes of the previous meeting were read and approved as corrected.

PAPER.

Mr. Hadden read a paper entitled, **"A List of Insects Eaten by the Mantis, Paratenodera sinensis** (Sauss.)."

NOTES AND EXHIBITIONS.

Anagyrus dactylopii (How.) *Established in Hawaii.—Mr.* Fullaway reported that this internal parasite of *Pseudococcus filamentosus* (Ckll.), which was introduced from Hong Kong October, 1925, has been recovered from material collected from the tree on which it was originally liberated.

South Pacific Insects.—Mr. Wilder exhibited part of an interesting and valuable collection of insects made by him during a trip through the Line, Society, Cook, Samoa and Fiji groups. The collection has been turned over to the Bishop Museum.

Thysanura Taken in Laboratory.—Dr. Williams exhibited specimens of silverfish captured in the Experiment Station, H. S. P. A. The specimens had been placed in a vial with paper and a little paste, where they had remained undisturbed and unattended for well over a month, and had seemed to thrive. This species was first recorded by Bridwell, Jan. 8, 1920, (see Proceedings Haw. Ent. Soc., IV, p. 453). Other specimens were taken early in 1920 by Mr. Swezey.

Termites on Lanai.—Mr. Ehrhorn exhibited specimens of *Kalotermes immigrans* and examples of their work in a twig of "naieo" (*Myoporum sandwicense*), taken on Lanai.

Azya lutipes Muls.—A specimen of this ladybeetle was exhibited by Mr. Swezey, taken by him on a Plumieria tree in front of the Grand Hotel, Wailuku, Maui, Jan. 13, 1926. Several kinds of scale insects were present, some of which were probably the food of the ladybeetle. Apparently this is the first record of this beetle on Maui.

Silaon rohweri Brid.—Mr. Swezey exhibited specimens of this tiny wasp collected by him at Lahaina, Maui, Jan. 15, 1926. They were observed flying quite abundantly among plants of *Portulaca oleracea,* a weed along the edge of the cane field. A species of Nysius bug was present on the weeds. The nymphs of this bug are the prey of the wasp, which stores them in its nest for food for the young. One of the wasps was caught by hand while alighted on a cane leaf. This is the first record of the occurrence of this wasp on Maui.

Casinaria infesta (Cress.)—Mr. Swezey reported observing this ophionid parasite quite abundant in a cane field at Lahaina, Maui, Jan. 15, 1926. Amaranths infested with *Hymenia recurvalis* (Fab.) were present and these larvae were no doubt the host of Casinaria. The only previous record of Casinaria on Maui is March 22, 1924, collected in cane field at Hana by

Mr. Swezey. This parasite is now known from Kauai, Oahu and Maui.

Dryophthorus homoeorhynchus Perk.—Specimens of this curculionid were exhibited by Mr. Swezey, collected by him from dead Dracaena tree in Iao Valley, Maui, Jan. 15, 1926. This species was described from Kauai, and recorded only from that island in the "Fauna Hawaiiensis." Mr. Swezey stated that he had now collected it from Kauai, Oahu and Maui, and always in Dracaena. It looks as though it was attached to this tree, instead of having general habits as most species of this genus have in Hawaii.

Pseudaphycus utilis Timb. *on Maui.*—On a recent trip to Maui Mr. Swezey had kept a lookout for the avocado mealybug on guavas and avocados wherever he went. No infestations were seen anywhere on avocadoes; but a few infested guava bushes were found at two different places in Makawao. Material was brought in from these places, and in each case a few *Pseudaphycus utilis* issued. At Keanae landing the *nipae* was more in evidence on guavas than anywhere else. One of the parasites was observed on a leaf, and others issued from material brought in. This indicates the wide spread of the parasite on the island and its effectiveness.

Scotorythra paludicola (Butl.)—A series of this moth was exhibited by Mr. Swezey, illustrating the great variability of the species. He had obtained his material from near Olinda, Maui, Jan. 13 and 14, where he had investigated a defoliation of an extensive koa forest caused by the caterpillars of this moth. The series of moths had issued from larvae and pupae collected in the koa forest, the larvae from those trees which were not yet entirely defoliated, and the pupae found in and beneath moss on logs, and on the ground, also, under trash, and in the soil.

Bactra truculenta Meyr.—Mr. Swezey reported the recovery of this tortricid moth, Jan. 23, 1926, at the places where liberated in May, 1925, at the Experiment Station, H. S. P. A. A few days later several moths were collected in various parts of the station grounds, showing it to be well established. It is the nutgrass borer introduced from the Philippines.

Monocrepidius exsul Sharp *on Lanai.*—Mr. Van Zwaluwenburg reported the capture of this click beetle by Mr. Ehrhorn, January 31, 1926, on the island of Lanai. This appears to be a new locality record.

Beneficial Birds.—Mr. Ehrhorn reported that half a dozen pairs of the Willie Wagtail were being sent to Hawaii from Australia. These pretty black and white fantail birds will be liberated in Niu valley, Oahu, to prey on the horn fly. Mr. Ehrhorn also stated that the Pewees liberated in Waialae were doing well. They had been seen nesting in Araucaria trees in Nuuanu Valley.

SPECIAL MEETING, FEBRUARY 26, 1926.

"Ancestry of Insects."

BY DR. R. J. TILLYARD, NELSON, N. Z.

The entomologists of Honolulu were invited to assemble at the Experiment Station, H. S. P. A., on the afternoon of Friday, February 26th, to hear an informal discussion by Dr. R. J. Tillyard of Nelson, New Zealand, on the ancestry of the present orders of insects. The remarks were illustrated by a number of excellent specimens of fossil insects brought by Dr. Tillyard, which had been secured in the Triassic and Permian strata in Australia and Kansas.

Dr. Tillyard spoke first of the ancestry of the Homoptera, which were abundant in the Triassic and upper Permian, forms having existed even in the lower Permian. He drew on a blackboard the venation of a typical wing of an ancestor of this group, demonstrating that the stigma had been enclosed by two branches of the first radial vein, (R_1a having originated as a strut), and suggesting the nomenclature and original courses of the various veins.

Taking up the other orders in turn, Dr. Tillyard discussed the primitive forms and their early relationship.

He stated that what appeared to be the ancestors of the Heteroptera existed in the Scaetenoptera, remains of which were found in Upper Permian strata. The wing had been divided transversely by a straight second cubital, along which the wings had frequently split. The finding in fossil beds of the two halves had led to much confusion.

He believed that he had found the ancestor of Diptera in a four winged insect in the Ipswich beds.

The ancestors of Coleoptera, Dr. Tillyard stated, had been abundant in the upper Triassic, but had not until quite recently been found in the Upper Permian. They had had their point of origin near that at which the Psocids had begun. The Protocoleoptera, he explained, had originally possessed thickened wings with nine or ten main veins, between which the wings had been punctured. From these the punctate striae had evolved by the veins becoming the ridges and the punctured strips between them becoming the punctate grooves. The modern Coleoptera, however, had developed from the Protocoleoptera by many stems; the present order not being a unit, but merely held together by common characters such as the elytra. Specimens of fossil Protocoleoptera wings were exhibited, perhaps seventy million years old.

The Protohymenoptera and the ancestors of the dragonflies, Dr. Tillyard stated, had probably had a common origin in a form with a normal and rather simple venation. The present complex venation in these two orders had come about by the great development, strengthening, and persistence of numerous cross-veins.

The Order with the best record, and the oldest of the holometabolous insects (those with complete metamorphosis), were the Mecoptera. Commencing back in the Carboniferous period, and reaching a dominance in the Lower Permian of America, the fossils of these present a nearly continuous story of their development. The Order now includes only the scorpion-flies and their allies. From this line some of the other Orders have split off by specialization, such as the Neuroptera in the Upper Permian.

Dr. Tillyard concluded by stating that, while the examination of a few thousand fossil specimens had thrown some little light on the ancestry of insects, this was but the beginning. Each new fossil discovered and studied opened up wider knowledge of the origin and relationships of this great group.

MARCH 4, 1926

The 242nd regular meeting of the Hawaiian Entomological Society was held at the usual time and place, President Willard in the chair. Other members present were: Messrs. Bryan, Ehrhorn, Fullaway, Giffard, Hadden, Illingworth, Mason and Rosa.

The minutes of the previous meeting were read and approved.

Mr. Arthur C. Mason was elected to active membership.

NOTES AND EXHIBITIONS.

Sybra alternans Wied.—Mr. Fullaway reported finding the adults of this longicorn beetle feeding on the dry limbs of a live fig tree.

Movements of Aphids.—Mr. Hadden gave some notes on a preliminary experiment to determine the speed of movement of wingless corn aphids. He had followed their movements with chalk lines on a horizontal blackboard. The aphids appeared to all be positively phototropic.

Pheidole megacephala (Fab.) *in Pineapple Fields.*—Dr. Illingworth reported this ant exceedingly numerous about the roots of pineapple plants suffering from "wilt." Observations on their feeding habits under such conditions demonstrated that they collected and ate the nematode worms, which are a most serious pest on the roots of this crop.

Prenolepis bourbonica Forel.—Dr. Illingworth stated that this ant was fairly common in the Wahiawa district in pineapple fields. On March 3, 1926, he found an exceedingly large colony in field No. 64 of the California Packing Corporation. This colony was located in the side of a bank, under paper and among the roots of very thrifty pineapple plants. Excavating to a depth of about 2 feet uncovered all stages and casts. Numerous winged males and females were present ready to fly.

A discussion followed on other ants thought to be present in pineapple fields. Dr. Illingworth stated that the larger ants had been driven out of Honolulu by *Pheidolc megacephala.*

Nutgrass.—Mr. Ehrhorn exhibited photographs showing the depths to which the roots of nutgrass penetrate in the ground. The photographs showed the corms numerous two feet or more below the surface. The possibility of killing nutgrass by injecting poison gas into the ground was discussed.

Coelostoma fabriciusi Montrouzier.—Mr. Bryan stated that Dr. A. d'Orchymont was interested in Pacific Hydrophilidae and would appreciate the opportunity of looking over any specimens available. M. d'Orchymont reported in a recent letter that *Coelostoma extraneum* Sharp is the same as *Coelostoma fabriciusi* Montrouzier, from New Caledonia, which name has priority.

Ophyra chalcogaster and *Ophyra nigra.*—Mr. Bryan exhibited specimens of these two anthomyid flies and read extracts from a letter from Dr. Aldrich concerning them. *Ophyra chalcogaster* Wied. is distinguished in both sexes, but especially in the male, by having white interspaces between the tarsal joints. The back of the eye at the sides forms a straight line along the middle. In the male the villosity of the hind tibia, on the flexor side, is about equally distributed between the inner and outer surfaces; and there is a trace of median stripe on the basal part of the abdomen. In *Ophyra nigra* Wied. the front tarsi do not have the white segmental portion; the margin of the eye at the side is distinctly concave in both sexes. In the male the abdomen is highly polished without basal median stripe, and the villosity of the hind tibia is mostly on the inner side. Both species occur in Hawaii, and both are widely scattered throughout the Orient.

APRIL 1, 1926.

The 243rd regular meeting of the Hawaiian Entomological Society was held at the usual time and place, President Willard in the chair. Other members present were: Messrs. Bryan, Crawford, Ehrhorn, Fullaway, Hadden, Illingworth, Muir, Rosa, Swezey, Van Zwaluwenburg, and Williams.

The minutes of the previous meeting were read and approved as corrected.

The secretary made a report on the number and condition of the stock of "Proceedings" of the society. He also extended the offer of the Bishop Museum to house these publications. It was moved by Mr. Muir and carried that the stock of the Proceedings not needed for immediate disbursement be stored in the Bishop Museum. To this was added that the thanks of the society be conveyed to Dr. Gregory, Director of the Bishop Museum, for this kind offer.

PAPERS.

"Notes on Forest Insects of Molokai."

BY O. H. SWEZEY AND E. H. BRYAN, JR.

NOTES AND EXHIBITIONS

Archytas cirphis Curran.—Mr. Muir reported this introduced Mexican Tachinid abundant in the fields of the Hawaiian Commercial and Sugar Company, along the Kula Road at an elevation of 3,000 feet, and at Wailuku, on Maui. It had not been sent over to Maui, but must have either flown across or traveled on the inter-island shipping. It is doing good service as a parasite on armyworms in the cane fields.

Armyworms and Cutworms.—Mr. Swezey deplored the loose way in which the terms "Armyworm" and "Cutworm" were used interchangeably. In sugar cane fields one generally finds only armyworms, such as *Spodoptera mauritia* (Boisd.) and *Cirphis unipuncta* (Haw.). These climb the stalks and eat the leaves, and are numerically abundant night and day. The cutworms, on the other hand, such as *Agrotis ypsilon* Rott., *Agrotis crinigera* Butler, and even *Feltia dislocata* (Walker), are nocturnal in their feeding, rarely travel in large numbers, live at higher elevations generally, and cut off stalks at their base. Even the native Hawaiians, in a general way, distinguished between these caterpillars. "Peelua" was the armyworm which ate the leaves of plants; "Poko" or "Poki" was the cutworm, which buried itself in the ground.

Scolia manilae Ashm., *on Kauai.*—Dr. Illingworth reported finding this root grub parasite flying in numbers in pineapple fields at Kapaa, Kauai. About the roots of the plants were to be found the grubs of *Adoretus sinicus* Burmeister, the so-called Japanese rose beetle.

Pantala flavescens Fab.—Mr. Hadden reported seeing a mynah bird eating one of these dragonflies.

Euplectrus platyhypenae How.—Mr. Swezey reported recovering this parasite at an elevation of 4,000 feet, Waiopai, Maui, March 3rd, 1926; also at lower elevations in the same region, and at Makawao, at about 2,000 feet elevation. In all instances the host caterpillar was *Cirphis unipuncta* (Haw.). The same parasite was found by Mr. Van Zwaluwenburg at Wailuku, Olowalu and Lahaina. This indicates that the Mexican armyworm parasite is well established on Maui.

Hyperaspis silvestrii Weise.—Mr. Swezey exhibited specimens of this ladybeetle reared by him from guava leaves infested by *Pseudococcus nipae* (Mask.) collected at Makawao, Maui, near the tunnel outlet of the Wailoa Ditch, Jan. 13, 1926.

Stethorus vagans Blkb.—Mr. Swezey reported this ladybeetle at Olinda, Maui, Jan. 13, 1926. Not previously recorded from Maui.

Hemiteles tenellus (Say).—Mr. Swezey reported collecting this cryptine at Olinda, Maui, Jan. 13, 1926. Not previously recorded from Maui.

Celerio lineata (Fab.).—Mr. Swezey reported that Dr. Lyon had brought in caterpillars of this sphingid moth found feeding on *Godetia grandiflora,* at Wahiawa.

Hyposoter exiguae (Vier.).—Mr. Swezey reported *Scotorythra paratactis* Meyr. as a new host for this ophionid parasite. He had found quite a number of cocoons on Dodonaea bushes that were considerably eaten by the caterpillars of this moth in

Kawaihapai valley, Feb. 21, 1926. The caterpillars were still very numerous and a number were brought in for rearing.

Micromus vinaceus Gerst.—Mr. Swezey reported recovering this introduced Australian hemerobiid at Kawaihapai, 2,000 feet in the Waianae Mountains, Feb. 21, 1926.

Holochlora japonica Burm.—Mr. Swezey reported finding this large katydid at 2,000 feet elevation, Kawaihapai, Waianae Mountains, Feb. 21, 1926. This is the farthest from Honolulu yet reported.

Nothorestias swezeyi Muir.—A female of this delphacid leafhopper was exhibited by Mr. Swezey. It was collected by him Feb. 21, 1926, on ferns in the Waianae Mountains above Kawaihapai at an elevation of 2,000 feet. This species had been collected but once before, and that was by him, March 27, 1921, in Makaha valley at a location about two miles southeast from where the present specimen was taken.

Chaetogaedia monticola (Bigot)—A specimen of this tachinid fly was exhibited by Mr. Swezey that had been reared by Mr. Williams from a chrysalis of *Vanessa tammeamea* Esch., the caterpillar of which had been collected on the trail from Sugar Loaf hill into Hering valley. This is a new host record for this tachinid.

Tetramorium sp.*—Mr. Swezey exhibited specimens of a species of ant whose nest was found March 22, 1926, in a sugar cane stalk which had been bored by *Rhabdocnemis obscura* (Boisd.). This occurred in a field at the Manoa substation, at an elevation of 500 feet. *Tetramorium guineense* (Fab.) was also present, but this differs from it in its smaller size and several minute structural characters.

Argyroploce illepida (Butl.)—Mr. Swezey called to attention that the tortricid moth which has been known as *Cryptophloebia illepida* in the Hawaiian islands, and which is such a pest in koa seeds, has been placed in the genus Argyroploce by Meyrick. (See Records of the Indian Museum, V, p. 218, 1910.)

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* Later identified by Dr. W. M. Wheeler as *Tetramorium tonganum* Mayr. [Ed.]

Meyrick states: "Calcutta, bred from litchi fruit in June and at light in August (Annandale). Having obtained a series of the Hawaiian form, I find it is identical with Australian, Indian and South African examples; the larva feeds in various fruits." Synonomy is given. This establishes this insect as an introduced form. But it was originally described from Honolulu as long ago as 1882 from specimens collected by Blackburn.

Oxya velox (Fab.)—Dr. Williams reported finding both the young and adults of this grasshopper in cane fields of the Hilo Sugar Co., mauka from Wainaku, Sept. 19, 1925. The occasional jagged injury to cane leaves could be seen. This is the first record of this insect on that island.

Dengue Fever.—Mr. Fullaway called attention to the paper on Dengue in the Philippine Journal of Science (Vol. 29, 1-2, Jan.-Feb., 1926), and to the fact that the mosquito which carries it (*Aedes aegypti* (Linn.)) occurs in Hawaii.

Conocephalus saltator (Sauss.)—Dr. Illingworth stated that he had found this grasshopper in pineapple fields eating mealy bugs, bud-moth caterpillars and the larvae of small rot flies.

MAY 6, 1926

The 244th regular meeting of the Hawaiian Entomological Society was held at the usual time and place, Vice-President Van Zwaluwenburg in the chair. Other members present were: Messrs. Bryan, Ehrhorn, Fullaway, Hadden, Illingworth, Mason, Muir, Rosa, Swezey, Wilder and Williams.

The minutes of the previous meeting were read and approved as corrected.

PAPERS.

Dr. Illingworth presented a paper entitled **"Predominance of Pheidole megacephala."** The reading of the paper was followed by a discussion of the habits of this ant, and the similar habits of the Argentine ant.

Silvanus sp.—Mr. Swezey exhibited a specimen of beetle collected behind leafsheaths of sugar cane at the Manoa substation of the Hawaiian Sugar Planters' Association, May 5, 1926. It appears to belong to the genus Silvanus, but not to any of the species listed in Leng's Catalogue of North American Coleoptera. This is apparently the first record of its occurrence here.

Cryptophagus sp.—Mr. Swezey exhibited two specimens of a cryptophagid beetle collected March 20, 1926, in Manoa. This is an undetermined immigrant species that has apparently not been collected here before.

Cryptamorpha desjardinsi (Guer.).—Dr. Illingworth exhibited an adult and larva of this cucujid beetle and read the following note: "The predacious larvae of this beetle are rather common on pineapple plants. Especially is this true where the plants and fruits are attacked by such pests as mealybugs, bud moths, fruit beetles, and other tiny larvae of flies, etc., which live within the leafsheaths and just under the fruit. I have seen the Cryptamorpha larvae feeding on such pests, and have bred out the adults. The pupation period is 6 to 7 days."

Book Preservation.—The following book solution was suggested by Dr. Illingworth to prevent the attack of silverfish, roaches and book beetles: 1 oz. corrosive sublimate (white powdered form), 1 oz. carbolic acid (crystals), dissolved in 1 quart of ethel alcohol.

Mr. Muir added that for the covers a little shellac, about 4 ozs. to a quart of solution, might be added.

Termites.—Mr. Muir called attention to the report on termites attacking poles, made by the Joint Pole Committee of the Mutual Telephone Company and the Honolulu Rapid Transit.

JUNE 3, 1926.

The 245th meeting of the Hawaiian Entomological Society was held at the usual time and place, with Vice-President Van

Zwaluwenburg in the chair. Other members present were: Messrs. Bryan, Crawford, Ehrhorn, Fullaway, Hadden, Illingworth, Muir, Rosa, Swezey, and Williams.

The minutes of the previous meeting were read and approved.

PAPERS.

Mr. Swezey presented a paper entitled, **"Hyposoter exiguae (Viereck) in Hawaii."**

NOTES AND EXHIBITIONS.

Coptotermes.—Mr. Fullaway reported an infestation of Coptotermes in lumber at Pearl Harbor Navy Yard. The lumber was, he thought, not local but imported from the coast. A line of electric light and telephone poles connects this section with Honolulu. Termites have been traced in poles as far as Pearl City.

The date of flights of termites was discussed. Flights were reported by various members as having occurred about Honolulu May 15th and 30th. Termites had been seen to swarm as early as 6 p. m. It was conjectured that they perhaps favored a warm, humid evening after a cold spell.

Mr. Ehrhorn and others called attention to records of Coptotermes eating living and growing Begonia plants, and live palms. Mr. Muir suggested that this might be due to the dryness, the termites leaving dead wood to seek moisture in living plants.

Insecticides.—Mr. Hadden mentioned the effectiveness of sodium fluoride as an insecticide against roaches, fleas on dogs and cats, and poultry parasites. Mr. Ehrhorn mentioned "Oronite" fly spray for fleas.

Scolia manilae Ashmead.—Dr. Illingworth reported this grub parasite abundant in fields of pineapples at Wahiawa. Grubs of *Adoretus sinicus* were present in the soil.

Archytas cirphis Curran (MS.).—Mr. Swezey reported observing this Mexican tachinid fly on flower beds in two places at Hilo, May 9, 1926. This is the first record of this fly having become established on Hawaii. It must have resulted from the liberations made by Mr. L. W. Bryan of flies taken by him when returning to Hilo, Sept. 8, 1925, and March 16, 1926, respectively. The flies supplied him had been collected in the fields, and of the first lot he reported that six survived the trip, and of the second lot eleven survived. From this beginning they will probably spread over the whole island.

Mr. Rosa reported that in breeding Spodoptera caterpillars in the laboratory at the Experiment Station, H. S. P. A., he obtained adult Archytas flies. He explained that the caterpillars could only have been parasitized by the eggs of the fly having been carried in on grass.

Euplectrus platyhypenae How.—Mr. Swezey reported finding this armyworm parasite established at six places on the Parker Ranch, Hawaii, May 11 and 12, 1926. Three places were at Waikii and three were in the vicinity of Mana—two widely separated regions. This is the first record of the parasite being established on the Parker Ranch.

Ox Warbles.—Mr. Swezey reported observing ox warbles quite common on the backs of cows at the Pookanaka Dairy of the Parker Ranch, May 12, 1926. The cows were Holsteins and were in the milking barn at the time. The first cow in the row had about a dozen of the warbles in her back, and others had fewer. On inquiry of the dairy foreman, it was learned that they were not imported cows. He had commonly noticed the warbles on young cattle. This would indicate that this cow pest is established there.

*New Immigrant Curculionid.**—Mr. Swezey exhibited specimens of a large weevil found by him hiding in tufts of grass at the Waikii and Mana sections of the Parker Ranch on Hawaii, about 4000 feet elevation, May 11 and 12, 1926. It is apparently the first discovery of this immigrant beetle. Nothing was learned of its habits. Mr. Hadden has examined it and found it to be the same species as that of which he has undetermined specimens, collected in Berkeley, California.

Plagithmysus.—Mr. Swezey exhibited a minute specimen of Plagithmysus reared from dead *Rubus Hawaiiensis* at Olinda,

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* Later identified as *Listroderes apicalis* Waterhouse. [Ed.]

Maui. It is not the *Plagithmysus vitticollis* Sharp that has been associated with this shrub by Dr. Perkins. Whether it is a new species or not, is not yet determined.

Introduction of Birds.—The subject of bird introduction was brought up and questions asked in a letter from Mr. C. S. Judd, Chief Forester, were discussed at some length by the members.

It was moved by Mr. Crawford, and carried, that the Hawaiian Entomological Society go on record as opposing the introduction of the downy and hairy woodpeckers.

It was further moved and carried that the society does not favor the introduction of the Peking nightingale until more definite information is received as to the purpose for which it is introduced, and concerning its habits.

It was further moved and carried that the President appoint a small committee to draft a letter setting forth the reasons of the society for opposing the introduction of these birds.

The president appointed Messrs. Muir, Fullaway and Bryan.

"Insect Fauna of Samoa."—Mr. Swezey presented the question as to the advisability of the Bishop Museum cooperating with the British Museum in the plan of the latter to publish an "Insect Fauna of Samoa," based largely on collections made in Samoa by Drs. Buxton and Hopkins. It was the opinion of the members that such cooperation would be to the advantage of the Bishop Museum for the following reasons: (1) The Samoan material in the Bishop Museum would be worked up more quickly and with less effort. (2) The resulting publication would be more complete and useful for further Pacific work. (3) Connections would be established with competent systematists. (4) Duplication of effort and synonymy in literature would be avoided. (5) Available funds and personnel could be more immediately applied to entomological exploration in other Pacific groups which had been neglected. (6) Having the disposition of its own material, and being assured of duplicate material from the Buxton and Hopkins collection, no arrangement could be fairer to the Bishop Museum.

JULY 1, 1926.

The 246th regular meeting of the Hawaiian Entomological Society was held at the usual time and place, with Vice-President Van Zwaluwenburg in the chair. Other members present were: Messrs. Bryan, Crawford, Ehrhorn, Fullaway, Hadden, Illingworth, Mason, Rosa and Williams.

The minutes of the previous meeting were read and approved.

The Secretary reported that the committee appointed at the previous meeting to reply to the letter from the Board of Agriculture and Forestry regarding the introduction of certain birds, had prepared an answer embodying the resolutions passed at the June meeting of the society, and giving reasons for the same. This letter had been signed by most of the members of the society and forwarded to Mr. C. S. Judd.

NOTES AND EXHIBITIONS.

Scolia manilae Ashmead *on Molokai.*—Dr. Illingworth reported this root grub parasite abundant in the vicinity of Mauna Loa, Molokai, where the grubs of *Adoretus sinicus* Burm. were also to be found. About 600 of this wasp were distributed to several localities on Molokai by L. T. Lyman, June and July, 1923.

Ammophorus insularis Boh.—Mr. Ehrhorn exhibited specimens of this tenebrionid beetle, which he had found in termite riddled wood at the end of pier 27, Honolulu. Although Mr. Fullaway stated that he had also found them associated with termites in Iwilei, it was thought that the beetles were only hiding in the termitarium. This species eats decaying organic material, especially vegetation and wood.

Plagithmysus pulverulentus (Mots.) *on Tantalus.*—Mr. Hadden exhibited a fine series of specimens of this longicorn beetle, and some other beetles, which he had found running about on a sickly koa tree on Tantalus.

Termite Flights.—Mr. Van Zwaluwenburg presented a list of dates on which termites, both *Coptotermes intrudens* Oshima and *Cryptotermes piceatus* Snyder, had been observed in flight.

General discussion brought forth that flights were pretty general throughout June, especially on still evenings after damp days. It was noted that five species and one variety of termites are now reported from Hawaii. The termite situation in Honolulu was discussed, including various methods of poisoning lumber, and a plan to fumigate street and railway cars.

AUGUST 5, 1926

The 247th regular meeting of the Hawaiian Entomological Society was held at the usual time and place, President Willard in the chair. Other members present were: Messrs. Bryan, Ehrhorn, Fullaway, Giffard, Hadden, Illingworth, Mason, Rosa, Van Zwaluwenburg and Williams.

The minutes of the previous meeting were read and approved as corrected.

NOTES AND EXHIBITIONS.

Termite Control.—Mr. Ehrhorn exhibited part of a mass of debris, the work of *Coptotermes intrudens* Oshima, found between two floor joists in the second story of the Royal Hawaiian Sales Co., corner of Richards and Hotel Streets, Honolulu. On August 3rd the colony had been very much alive. A pole standing on Richards Street, on the edge of the sidewalk, fully 20 feet away, was fumigated with carbon bisulphid. August 5th no sign of activity was noted in the colony. Mr. Ehrhorn stated that in other instances the fumigating of service poles near buildings has caused activity of the termites in the buildings to stop within a day or two.

Dr. Illingworth stated that the exhibited termite debris was similar to that found in riddled trees in North Queensland, where the riddling is called "piping." It is used as cheap cement for floors and tennis courts in Australia.

Henoticus serratus (Gyllenhal).—Mr. Giffard exhibited four specimens of this rare cryptophagid beetle, beaten from *Myoporum sandwicensis* and Suttonia at Kilauea, Hawaii, August, 1920. Specimens were placed in the collection of the Experiment Station, H. S. P. A.

Scotorythra hyparcha Meyrick.—Mr. Giffard reported having been informed by Roy Finch of the Hawaii Volcano Observatory that an immensely large flight of this nocturnal moth occurred at the Volcano House, Kilauea, and neighboring residences for one night only, on the evening of April 3, 1926.

A previous record (Proc. Hawaiian Ent. Soc., Vol. 5, No. 2, p. 192, September, 1923) of a similar flight in the same region reported its continuation nightly for several months.

Although the moth is quite common at Kilauea, only a few individuals are usually seen nightly, and there are at times periods of weeks when none appear at light. It would be interesting to know the cause of these periodical and unusually large flights.

Spread of Cryptotermes in Hawaii.—A note by Mr. Muir was read stating that Cryptotermes had been sent in from Hakalau and Honokaa, Hawaii, and McBryde Plantation, Kauai. Specimens had been taken at Spreckelsville, Maui. On Oahu specimens have been sent in from Waialua and Kahuku.

Ischiogonis syagrii Fullaway.—Mr. Fullaway reported that this fern weevil parasite had the weevil in control about Kilauea, Hawaii.

Mr. Giffard added that the weevil had become hard to find. He considered the parasite at least 95 per cent effective, and thought that the control would be permanent unless the biological complex were upset.

Eutreta xanthochaeta Aldrich.—Mr. Bryan reported that in a recent letter to Dr. Illingworth, Dr. J. M. Aldrich had stated that he had secured a specimen of this Trypetid, which is our lantana gall-fly, at Coban, Guatemala. This species was introduced into Hawaii from Mexico in 1902 to help check the spread of lantana. It is distinguished from *Eutreta sparsa* Wied. by its yellow bristles on the head and thorax.

Opius humilis Silvestri.—Mr. Willard reported the successful introduction of two shipments of this Mediterranean fruit-fly parasite into Bermuda. He thought that it would probably become established there.

Returning from an extensive trip to the mainland, Mr. Willard brought greetings from Dr. L. O. Howard, Dr. C. L. Marlatt, August Busck, P. H. Timberlake, and other friends of members of the society.

SEPTEMBER 2, 1926

The 248th regular meeting of the Hawaiian Entomological Society was held at the usual time and place, President Willard in the chair. Other members present were: Messrs. Bryan, Crawford, Fullaway, Giffard, Hadden, Illingworth, Mason, Muir, Rosa, Swezey, Van Zwaluwenburg, and Williams. Mr. Ashley C. Browne was a visitor.

The minutes of the previous meeting were read and approved.

It was moved by Mr. Fullaway and unanimously carried that the Society extend a vote of thanks to the Hawaiian Sugar Planters' Association for their continued support in the printing of the "Proceedings;" and that the Secretary write a letter conveying this vote of thanks to the Trustees of the Association.

PAPERS.

Dr. Illingworth exhibited specimens and presented an annotated list of the insects found in pineapple fields at Mauna Loa, Molokai.

NOTES AND EXHIBITIONS.

Lactrodectes mactans (Fabr.).—Mr. Hadden exhibited a specimen of this "hour glass spider," taken at Waikiki, in a garden, by James Wilder, August 29, 1926. Two specimens have been previously captured, both at Koko Head. A general discussion followed as to the extent to which this spider is poisonous.

Coleotichus blackburniae White.—Mr. Hadden exhibited specimens of the eggs, larvae and adults of this showy metallic green bug, from koa on Tantalus, August 28, 1926. The young are red with black markings and the eggs creamy white.

Mediterranean Fruit Fly at Kilauea.—Mr. Giffard reported having received in June last from Mr. Roy Finch of the Volcano Observatory, a small vial containing larvae in alcohol of a fly, taken by him from ripe wild peaches in the so-called "Bird Park" at Kilauea, Hawaii. It was suspected that they might be the larvae of *Ceratitis capitata* Wied. This latter fact was confirmed by Mr. Giffard in August. During a recent trip to Kilauea (in July), he visited the peach trees in the park in company with Mr. Finch, and gathered two or three ripe specimens of the fruit which appeared to have been stung by a fruitfly. From these he bred in August the following: 11 specimens of *Ceratitis capitata* Wied., 1 specimen of a small black phorid fly, and 1 specimen of the fruitfly parasite, *Diachasma tryoni* Cameron.

It is interesting to note that not only does Ceratitis thrive in the Kilauea dry forest region at approximately 4,200 feet elevation, but that one of the parasites introduced for its control has followed it to that high elevation and isolated locality. It was thought by other members that both may have been carried there by picnickers in mangoes or avocados.

Two or three years ago at 4,000 feet elevation in the arid area to the south of the volcano, while sweeping for other insects in company with Mr. Fullaway, Mr. Giffard captured two or more specimens of *Diachasma fullawayi,* which it was then supposed had been blown to that high altitude from lower elevations in the Hilo district. Mr. Giffard now suspects that they were parasitizing larvae of the fruit fly in the fruits of Cyathodes or Ohelo (possibly both), both of which shrubs were quite common and in fruit at that time all thru the region.

Mr. Giffard had not known Ceratitis to attack the peaches in his garden at 29 miles, Olaa, (3,900 feet elevation), which is 2 miles below the Volcano but in a much more rainy region than that of the Bird Park. He believes this to be the first record of *Ceratitis capitata* Wied. having been bred from fruit in the Kilauea region.

Regarding the fruit fly at high elevations, it was stated by other members that it breeds all year round at Waimea, Hawaii, and is found as high as Waikii, 6,000 feet elevation. On Maui none have been reported in peaches at Olinda, 4-5,000 feet, but they are bad at Kula, 3,000 feet elevation.

In reply to a question asked by Prof. Crawford regarding the Mediterranean fruitfly in papayas, Mr. Willard stated that they will sting the tree-ripened fruit, but usually not green fruit. Prof. Crawford had seen a partly-ripe papaya with a 4- or 5-day-old maggot in it.

Neoclytarlus sp.—Mr. Fullaway exhibited a specimen belonging to this genus of longicorn beetles, captured at Kilauea, Hawaii, July, 1926.

Listroderes apicalis Waterhouse.—Mr. Swezey reported having obtained this as the name for the new immigrant weevil found by him May 11-12 at Waikii and Mana on the Parker Ranch, and reported at the June meeting of the Society. Specimens had been compared by G. R. Wilson, San Francisco, Calif., with some that had been collected at San Jose and had been determined at Washington as *Listroderes obliquus* Gyll. A recent paper by Chittenden, (Proc. Biol. Soc., Washington, v. 39, pp. 71-74, July 30, 1926,), however, gives the name as above. It is known as the Australian tomato weevil in Mississippi, where it was first noted in 1922. Mr. Hadden had specimens in his collection collected on hollyhock at Berkeley, California, in 1925.

Alfalfa Weevil Control in California.—Mr. Swezey exhibited specimens of the alfalfa weevil, which had been captured by quarantine inspectors at the "Nevada line." Mr. Browne described the methods of examining traffic between Nevada and California in an effort to keep this weevil and other pests out of California. He stated that the weevil had spread rapidly throughout Colorado, Utah and Nevada, causing 30 to 40 per cent loss to the alfalfa crop. It was a wonder to him that, despite all the precautions, the weevil had not gained access to the rich fields in central California.

Tetramorium tonganum Mayr.—Specimens of this ant were exhibited by Mr. Swezey. He had found a nest of them, March 23, 1926, in a stalk of sugar cane that had been eaten by the cane borer at the Manoa substation of the Hawaiian

Sugar Planters' Association. The determination had been made by Dr. W. M. Wheeler. The ant was described from Tonga in 1870. It has more recently been recorded from Fiji and the Solomon Islands. This is its first record in the Hawaiian Islands.

Sclerognathus bacchus Hope.—Mr. Swezey exhibited specimens of this Lucanid beetle collected at Cunco, Chile, which had been sent to him by E. R. Leach of Piedmont, California. They somewhat resemble our native Lucanid, *Apterocyclus honoluluensis* Waterhouse, and may throw light on the origin of this curious species.

Entomological Meetings at Oakland.—Mr. Swezey made a brief report on the meetings of the Pacific Coast Entomological Society and the Pacific Slope Branch of the American Association of Economic Entomologists, which he attended in June at Mills College, Oakland, California. He also related some of his experiences in hiking and collecting insects in Yosemite Valley, which he visited in company with P. H. Timberlake, the last week of June.

Arsenate of Lead on Apples.—Mr. Browne, who is representing the California Spray Chemical Co., while in Hawaii on a vacation, spoke of the problems of apple and other fruit growers arising from arsenate of lead poisoning. It is frequently necessary to spray the orchards several times against coddling moth and other pests. The law permits but a hundredth of 1 per cent of poison on the fruit; and the arsenate of lead does not wash off sufficiently, nor will brushing devices remove more than half of the poison. Various other sprays are being tried.

OCTOBER 7, 1926

The 249th regular meeting of the Hawaiian Entomological Society was held at the usual time and place, President Willard in the chair. Other members present were: Messrs. Bryan, Fullaway, Hadden, Illingworth, Mason, Muir, Rosa, Swezey, Van Zwaluwenburg, and Williams.

The minutes of the previous meeting were read and approved.

PAPERS.

F. X. Williams, **"Notes on the habits of the bees and wasps of the Hawaiian Islands."**

O. H. Swezey, **"Notes on Rhyncogonus extraneus."**

E. H. Bryan, Jr., **"Stratiomyiidae from Japan, China, and Malaysia."**

O. H. Swezey, **"Foreign Sphingidae in the collection of the Experiment Station of the Hawaiian Sugar Planters' Association."**

NOTES AND EXHIBITIONS.

Cephalochrysa hovas Bigot.—Mr. Bryan exhibited specimens of this showy Stratiomyiid fly, which has been known locally as "Sargus sp." The determination was made by Mr. Brunetti, from specimens sent to the Imperial Bureau of Entomology, London. This is the third immigrant species of soldier fly known to occur on the main islands of the Hawaiian group. The other two are *Neocxaircta spinigera* (Wied.) and *Evaza javanensis* de Meij. No native species are known.

Coptotermes intrudens Oshima.—Dr. Illingworth reported finding the soil in the yard of a new residence at the corner of 15th and Maunaloa Ave., Kaimuki, infested with these termites. Considerable damage had been done to plants around its base. The stems of geraniums, coleus, etc., had been so thoroughly mined that the plants had succumbed.

Dr. Illingworth also reported finding a supplemental nest of these termites at the Oahu Ice Company's plant. This was located between the ceiling joists, and was as large as a good sized washtub. It was composed of the wood-pulp excrement of the colony, and had the appearance of a corky material. It is important to note that this nest contained numerous individuals of all stages of the colony, including both the winged royal pairs and the neoteinic forms. The latter, according to Snyder, are able to maintain the colony in a thriving condition. With this species, the main consideration is a sufficient supply of moisture. In this case, moisture was found to come both from a leaking tank on the roof, and from the dampness below.

*Spodoptera Egg Parasite.**—Mr. Rosa reported that a number of parasites had issued on October 4, from Spodoptera eggs which he had found the previous week. Mr. Swezey stated that they were a species of Telenomus as yet unrecorded from Hawaii, and not closely related to the Hawaiian species. They were not very abundant, as yet, for Spodoptera eggs had not been much parasitized.

Coptotermes intrudens Oshima *in Sugar Cane.*—Mr. Swezey reported that this termite had been found in sugar cane in a garden at Pearl City, Oahu. A discussion followed as to the means of spread of this pest. In every instance of local infestation of sugar cane by termites, a nearby stump, pole or piece of wood has been found to be also infested.

Plagithmysus solitarius Sharp.—Mr. Swezey exhibited a female and male of this cerambycid beetle, collected by Mrs. H. L. Lyon on the Pupukea-Kahuku military trail, Sept. 15, 1926. The pair well exhibit the difference in coloration of the sexes as pointed out by Dr. Sharp in the Fauna Hawaiiensis, vol. III, page 647, 1910, where the female is first described. The male is quite uniformly ferruginous, while the female has black femora and thorax. He also exhibited another specimen of the same beetle, reared by himself from a pupa found beneath the bark of an ohia ha stump, September 18, 1926, on the same trail. Old stumps and trees which were cut when the trail was made show borings of large numbers of some longicorn beetle beneath the bark. Possibly it was this same species. If so, it indicates that it can become very numerous when conditions are favorable.

Nesotocus giffardi Perkins.—Mr. Swezey exhibited a specimen of this strange native weevil, collected by him in the split base of a fallen Pterotropia tree on the Pupukea-Kahuku military trail, September 18, 1926. This extends the known range of this weevil to practically the whole length of the Koolau Range, it having been known previously from Kuliouou, near the southeast end, to Lanihuli, and at Kahana. There was no evidence of its breeding in the Pterotropia log. It appears to have only recently fallen, for the bark was still in good condition, and some leaves on the top were still green. Perhaps, later on, the larvae may be found here, as it is probably one of its host trees, being an araliad.

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* Later determined by Mr. A. B. Gahan of the U. S. Bureau of Entomology as *Telenomus nawai* Ashm. [Ed.]

Pleurophorus parvulus Chev.—Mr. Swezey called to attention that the aphodiid beetle in our collections and recorded in the Proceedings of the Hawaiian Ent. Society, IV, p. 606, 1921, as *Psammodius nanus* De Geer, is synonomized with *Pleurophorus parvulus* Chev. in Leng's Catalogue of the Coleoptera of North America, where it is indicated that *nanus* is cited in error by Horn in Trans. American Ent. Society, XIV, p. 96, 1887.

Pachyneuron allograptae Ashmead.—Mr. Swezey reported finding a female of this parasite examining a puparium of the syrphid fly, *Simosyrphus grandicornis* (Macq.), on Sept. 24, 1926. It was placed in a vial for observation. After some time it selected a place that seemed satisfactory to it and began inserting its ovipositor. It seemed to have great difficulty, and occupied about ten minutes before the ovipositor was fully inserted. Then it remained in this position for another fifteen minutes before withdrawal. At 8 a. m. on October 6th, the parasites were found to have issued, in only twelve days from oviposition. There were fifteen females and twelve males. From six other puparia collected at about the same time as the other one, the flies themselves issued, which is unusual, as they are usually quite heavily parasitized, either by the Pachyneuron or by Diplazon.

Caterpillar Plague in Kau, Hawaii.—In reference to a caterpillar plague in Kau, Hawaii, as recently reported in the newspapers, Mr. Swezey stated that he had written to one of the plantation managers of that district requesting that some of the caterpillars be sent for determination, so as to determine whether it was a new immigrant pest or not. A few caterpillars were sent and they proved to be those of two common hawkmoths: *Celerio lineata* (Fab.) and *Herse cingulata* (Fab.). Apparently rains in the region had brought on a new growth of Portulaca and Ipomoea, which are the favorite food plants of these species respectively. The caterpillars were very numerous over a large lowland area, extending over nearly all the region from the south point to Honuapo and to Waiohinu. Some families were said to have moved from their houses on account of the numerous caterpillars crawling in.

Ceratitis capitata Wied. *in Dates.*—Mr. Willard stated that he had reared three adults of this fruit fly from dates collected by E. M. Ehrhorn on the premises of E. D. Tenney, Pensacola and Lunalilo Sts., September 14, 1926. This is the second instance on record where the Mediterranean fruitfly has been reared from dates in Hawaii. Back and Pemberton, U. S. D. A. Bulletin No. 536, page 45, record rearing two adults from fruits of the unimproved date palm, *Phoenix dactylifera*, in August, 1913.

NOVEMBER 4, 1926.

The 250th meeting of the Hawaiian Entomological Society was held at the usual time and place, President Willard in the chair. Other members present were: Messrs. Bryan, Crawford, Ehrhorn, Giffard, Hadden, Illingworth, Mason, Muir, Rosa, Swezey, Van Zwaluwenburg, Whitney and Williams. Dr. Marie Faus was a visitor.

The minutes of the previous meeting were read and approved.

PAPERS.

Mr. Swezey presented a paper entitled, **"Life history notes on the Mexican Tachinid, Archytas cirphis."**

NOTES AND EXHIBITIONS.

Coptotermes runway.—Mr. Ehrhorn exhibited a runway of *Coptotermes intrudens* Oshima found at the University Club building, Honolulu. These runways when old are rather large, and can be used to advantage for fumigating with carbon bisulphid. He also exhibited two young queens from a nest found on the roof of the Inter-Island Terminal Pier, No. 26. Eggs and individuals in all stages were also found. The nest, as far as observed, did not have any connection with the soil.

Mole Cricket Parasite.—Dr. Williams exhibited an immature specimen of *Gryllotalpa africana* secured October 25, on Tantalus, Oahu, at 1,700 feet elevation, just after it had been parasitized by *Larra luzonensis.* This wasp parasite was introduced to Hawaii last year from the Philippines.

Xiphidiopsis lita Hebard *in Honolulu.*—Mr. Giffard exhibited a specimen of this small, long-horned grasshopper, captured at the corner of Keeaumoku and Heulu Sts., Honolulu. The specimen was a female; the male is still unknown.

Hypoderma lineata (DeVillers).—Dr. Illingworth exhibited specimens of the maggots of this heel fly which he and Dr. Marie Faus had secured from the backs of freshly killed cattle at the Kalihi slaughterhouse. The cattle had been sent over from the Parker Ranch, where they were bred. Maggots have been found in cattle in Hawaii from time to time, but no specimen fly has yet been captured. (See Hawaiian Planters' Record, XXV, p. 23, 1921; and Proceedings Hawaiian Entomological Society, Vol. VI, p. 363, 1926.)

Orneodes objurgatella Walsingham.—A good series of this delicate little plume moth was exhibited by Mr. Swezey reared by him from the fruits of *Plectronia odorata,* collected at Mahena, 1,400 feet elevation, West Maui, October 13, 1926. It had not been previously recorded from Maui, but had been reared abundantly a number of times on Oahu from the fruits of the same tree.

Ethmia colonella Walsingham.—Mr. Swezey reported capturing a specimen of this oecophorid moth at Wailuku, Maui, October 11, 1926, and also finding the caterpillars numerous on a *Cordia subcordata* tree at Kahului, October 16th. The moth has been scarce of late years due to the scarcity of the host tree. On account of the devastation by these caterpillars, the tree has not been planted much of late years in Hawaii, and is now seldom met with. The kou tree (*Cordia subcordata* Lam.) at Kahului was in the school yard, where there were also two others, somewhat recently planted, and had grown well, but many of the leaves were ragged from the feeding of the Ethmia caterpillars.

Bruchus sp. near *coryphae*.—Mr. Swezey reported collecting this bruchid on *Ipomoea pes-caprae* at Kahului, Maui, October 16, 1926. It was so common that in some patches of the plant nearly every seed capsule had an exit hole made by the bruchid. This is the first record of its occurrence on Maui.

Engytatus geniculatus Reuter.—Mr. Swezey reported collecting this little bug on tomato vines growing wild on a ditch bank at Olowalu, Maui, October 11, 1926. It is the first record of its occurrence on Maui.

Latrodectes mactans Fabricius.—Mr. Swezey reported another capture of this poisonous "hour-glass" spider. Two of them were found while unpacking some camping cots at Laulaunui Island in the western part of Pearl Harbor, October 24, 1926, by Miss Deverill. Apparently the spider had crawled into these folded cots, stored in a cabin on the island, either for nesting, shelter or hiding. This extends the known distribution of the spider. The places where it has been collected so far are: Koko Head, Waikiki, Iwilei, Lanikai, and now Pearl Harbor. It emphasizes the fact that precautions are necessary in regard to spiders—to avoid this one.

Telenomus nawai Ashm.—Mr. Rosa exhibited a vial containing a great number of these tiny parasites. They have issued from Spodoptera eggs collected at Kaimuki and Waikiki. The life cycle of the parasite is from ten to twelve days. Colonies have already been sent to every plantation on Hawaii.

DECEMBER 2, 1926.

The 251st regular meeting of the Hawaiian Entomological Society was held at the usual time and place, President Willard in the chair. Other members present were: Messrs. Bryan, Crawford, Ehrhorn, Giffard, Hadden, Illingworth, Mason, Rosa, Swezey, Whitney and Williams.

The minutes of the previous meeting were read and approved as corrected.

The report of the Treasurer for 1926 was read.

OFFICERS ELECTED FOR 1927

President: Mr. R. H. Van Zwaluwenburg.
Vice-President: Mr. E. H. Bryan, Jr.
Secretary-Treasurer: Mr. H. F. Willard.

Members of the Executive Committee: Mr. F. Muir.
Mr. W. M. Giffard.

The matter of a contribution to the Zoological Society of London toward the continued publishing of the Zoological Record was discussed. It was moved by Mr. Swezey, seconded and carried that a voluntary contribution from the members of the society up to the sum of twenty-five dollars ($25.00) be collected by the Secretary-Treasurer for the Zoölogical Record.

On motion of Mr. Giffard, the president appointed Messrs. Swezey, Giffard and Bryan as a committee to look into the advisability of amending the by-laws relative to the separation of inactive from active membership.

Mr. Willard read his Presidential Address on **"Some Observations in Hawaii on the Ecology of the Mediterranean Fruitfly, Ceratitis capitata Wied., and Its Parasites."**

Mr. Bryan presented a paper by Mr. J. R. Malloch on **"A New Species of Sapromyzidae from the Hawaiian Islands (Diptera)."**

Mr. Hadden presented a paper entitled **"Saprinus oregonensis Lec., a Correction."**

Mr. Swezey presented by title the following papers:

"New Species of Hawaiian Chalcid-flies (Hymenoptera), 2"

BY P. H. TIMBERLAKE.

"Biological Control of Insect Pests in the Hawaiian Islands."

BY P. H. TIMBERLAKE.

"Notes on Hawaiian Coleoptera (Curculionidae and Cerambycidae) and Descriptions of New Species."

BY DR. R. C. L. PERKINS.

"Notes on the Host Plants of Species of Proterhinus in the Kokee Region of Kauai."

BY O. H. SWEZEY.

Dr. Illingworth read extracts from a paper which he presented entitled, **"Insects Attracted to Carrion in Southern California."**

NOTES AND EXHIBITIONS

Termites.—Mr. Ehrhorn exhibited two vials showing a small colony of *Kalotermes immigrans* Sny. ex klu, taken by Mr. Chock, November 29, 1926. He also exhibited a vial with nymphs, etc., of *Coptotermes intrudens* Oshima, taken December 1, 1926. He found nymphs of this species on Nov. 24, at the waterfront, and Nov. 26, Nov. 30, and Dec. 1, at higher levels. Dr. Illingworth stated that he always found nymphs present.

Mr. Ehrhorn exhibited a post 2 x 4 inches, which had been driven in the ground at the Inter-Island Terminal No. 27, about two and a half months ago. It was much eaten, showing how Coptotermes had attacked it during that period.

Coptotermes formosanus Shiraki.—Attention was called to a recent paper by Mr. Fullaway in the Hawaiian Forester and Agriculturist (Vol. XXIII, No. 3), 1926, in which he states (p. 69) that *Coptotermes intrudens* Oshima has been synonymized with *C. formosanus,* by Dr. S. F. Light, who states, *in litt.,* “There is really no difference between the species of Coptotermes found in Hawaii and the one found in Southern Japan, Formosa, and along the south China coast (*formosanus*).”

Preserving Termites.—Mr. Hadden stated that if termite specimens were placed in 90 to 95 per cent ethel alcohol for 2 or 3 days, they could then be removed and mounted on points without losing their shape.

Cryptotermes piceatus Snyder.—Mr. Swezey exhibited specimens of workers and winged forms of this termite collected from a fallen dead branch of a *Grevillea robusta* tree at the Experiment Station, H. S. P. A., November 14, 1926. The branch had but recently fallen during a heavy wind storm. This termite is well known in buildings and telephone poles, and no doubt occurs in trees, but apparently no record has heretofore been made in the Hawaiian entomological literature of finding it in trees.

Beetles in Rotten Byronia Wood.—Mr. Swezey exhibited the following beetles, collected by him from the rotten trunk and stump of Byronia on Kahauiki ridge, November 7, 1926. There are nine species in the list and it is a larger number than he had ever collected at one time from the rotten wood of any Hawaiian tree.

4	Thoracophorus sp.	(Staphylinidae)
1	*Antilissus aper* Sharp	(Colydiidae)
1	*Ptiliodes pulchellus* Scott	(Trichopterygidae)
4	*Dryophthorus squalidus* Sharp	(Cossoninae)
1	" *distinguendus* Perkins	"
7	" *declivis* Sharp	"
10	" *modestus* Sharp	"
4	" *oahuensis* Perkins	"
2	" *insignis* Sharp	"

Oxya chinensis (Thunberg).—Mr. Swezey called to attention that our grasshopper under the name *Oxya velox* (Fabricius) has in recent literature been considered as *Oxya chinensis* (Thunberg). See: Willemse, Tidschrit voor Entomologie, LXVIII, pp. 3 and 49, 1925; and Uvarov, Bulletin of Entomological Research, XVII, pt. 1, p. 48, 1926.

Plagiomerus hospes Timberlake.—Mr. Swezey reported collecting a specimen of this encyrtid parasite on Mt. Kaala, Nov. 11, 1926. This is apparently the first record of it from the Waianae Mountains, the previous records being from Nuuanu Pali, Kalihi, Waimalu, and Opaeula of the Koolau Range. The habits of the parasite are not yet known.

Telenomus nawai Ashm.—Mr. Swezey reported finding this Spodoptera egg parasite on the Kamehameha School grounds, November 23, 1926. Egg clusters of *Spodoptera mauritia* (Boisd.) were quite abundant on the underside of leaves of young Ficus trees in various parts of the grounds. On several of these egg clusters the adult parasites were seen. Other clusters consisted of empty egg shells from which parasites had issued, apparently all of the eggs having been parasitized.

Mr. Swezey also reported finding a cluster of parasitized eggs of *Spodoptera mauritia* on a Ficus leaf in his yard on Lanihuli Drive, Manoa, November 29th. Apparently nearly every egg of the cluster was parasitized. Three other egg clusters from which the parasites had already issued were found on the same tree. Apparently when an egg cluster is attacked all or nearly all of the eggs are parasitized. Fifteen adult parasites were seen at another egg cluster. This extends the known distribution of this parasite from Kaimuki and Waikiki to Kapalama and Kalihi and up into Makiki and Manoa.

Milichiella sp.(?)—Mr. Swezey exhibited specimens of a fly that had appeared in large numbers recently near a large compost heap at the Experiment Station, H. S. P. A. The first ones were collected September 9, 1926. They are quite numerous in this one place. Apparently the fly has not been previously observed here.

Latrodectes mactans Fabricius.—Dr. Illingworth reported finding this "hour glass" spider in pineapple fields in the Lualualei District, below Kolekole Pass, Waianae. They were seen April 16, 1926, hiding at the base of the leaves of the pineapple plants.

New Host for Ceratitis capitata in Hawaii.—Mr. Willard reported rearing 87 specimens of this fruitfly from five fruits of Lucuma sp. which were collected October 8th, 1926, at Moanalua. This is the first record of Lucuma as the host of the Mediterranean fruitfly in Hawaii.

Termites Intercepted in Quarantine.—Mr. Whitney reported the following cases of termites intercepted at the Bureau of Plant Inspection of the Board of Agriculture and Forestry:

Coptotermes formosanus Shiraki. Inspection No. 536; large colony found in a case of banana shoots and yams from Manila, P. I., consigned to U. S. Agricultural Experiment Station, Honolulu, July 9, 1918.

Reticulitermes (Leucotermes) spretus Kolbe. Inspection No. 787 G; from a shipment of *Paulownia imperialis* logs from Japan, February 1, 1922.

Reticulitermes hesperus Banks. Inspection No. 1321; a small colony found in a broken lath in soil of a balled citrus tree from Cascada Ranch Nurseries, San Francisco, California, November 11, 1926. This is a western species, apparently restricted to Washington, Oregon, Nevada and California. It is reported by Snyder to be a destructive wood borer, injuring any wood in contact with the ground, including telephone poles and the woodwork of buildings.